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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,653	08/08/2001	Kee Yean Ng	70980061-2	5527

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EXAMINER

LEURIG, SHARLENE L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/924,653	Applicant(s) NG, KEE YEAN	
	Examiner Sharlene Leurig	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on December 8, 2003 has been entered and acknowledged by the Examiner. Claims 1, 9 and 10 have been amended.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a light emitting device comprising a coating having particles of another substance, wherein the particles are evenly settled on and around the light emitter, as recited in claim 1, and wherein the particles settle to a lower position towards the periphery of the base of the cavity, as recited in claim 9, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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4. Claims 1, 10 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites a "semi-fluid coating", a term which is not disclosed in the specification. The applicant asserts that the newly claimed limitation is disclosed in the specification on page 6, lines 18-19 where it discloses that the phosphor powder is mixed with the epoxy to form "a viscous slurry". However, the same paragraph, line 30 discloses that the epoxy is cured at the end of the production process, before a lens is added. Therefore, if claim 1 and its dependents are directed to a final product, which claim 12 describes since it claims a lens positioned over the light emitter, the viscous slurry would no longer be semi-fluid.

Claims 10 and 11 recite the coating further comprising an adhesive material, which implies that the coating comprises the coating material that is of a different substance than the particles and the particles, both of which are recited in claim 1, and a further adhesive material. Nowhere in the specification is a coating material having coating material, particles, and an adhesive material disclosed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 6-7, 9 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (3,555,335) (of record) in view of Komoto et al. (6,340,824) (of record).

Regarding claim 1, Johnson discloses a light-emitting device comprising a base substrate with a cavity to form a reflective cup (Figure 5, striped element), a projecting platform (31) at the base of the cavity, and a light emitter (30) mounted on the projecting platform.

Though Johnson discloses a color filter incorporated into the casting resin of the device to achieve a desired optical effect, it lacks explicit disclosure of a coating material applied over the light emitter.

It is well known in the art to provide a coating of dye or phosphor over a light emitter to achieve a desired optical effect.

Regarding claim 1, Komoto teaches a semi-fluid coating having particles of another substance and being applied over a light emitter, where the particles (Figure 106, element FL) are evenly settled on and around the light emitter within the cavity, where evenly is interpreted as meaning equidistantly or with the same thickness throughout and coating is interpreted as meaning a thin layer covering something. The coating can be described as semi-fluid because it comprises both a fluorescent material, such as a phosphor powder, and a fluid, such as a solvent, which is a fluid, that is deposited onto the light emitter (column 49, lines 5-20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a semi-fluid coating layer having particles coated evenly over the light emitter, as taught by Komoto, to modify the light emitted to achieve a uniform lighting effect.

Regarding claim 2, Johnson discloses a projecting platform formed as an integral part of the base substrate (see Figure 5, element 31 and surrounding striped element).

Regarding claim 6, Johnson discloses a reflective cup (Figure 5, striped element) providing reflection of light emitted by the light emitter (column 3, lines 39-44).

Regarding claim 7, Johnson discloses a cavity having a sloping wall (33, 34 or 35) of a frusto-conical form surrounding the projecting platform, where the sloping wall (column 3, lines 39-44) and the platform (column 3, lines 65-68) are coated with a reflective material. The sloping wall is interpreted as being frusto-conical because each section of the wall (34, 35) is formed as a shape of section of an inverted cone. Since the structure of Figure 5 is integral the platform must be considered part of the reflector.

Regarding claim 9, Johnson lacks disclosure of a coating covering the light emitter, as discussed above.

Komoto teaches a coating containing particles (FL) that settle to a lower position towards the periphery of the base of the cavity, thereby forming a coating containing the settled particle, the coating having of a constant thickness over a light emitter (Figure 106, element FL). Since the particles have a different settling speed than the surrounding layers' components, the fluorescent layer FL settles to the bottom (column 49, lines 5-20).

Therefore regarding claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter disposed on the platform of Johnson to have a coating formed uniformly over the emitter with the particles dispersed in the coating settling at a lower position toward the base, as taught by Komoto, in order to achieve a uniform light effect. In such an arrangement the platform would allow the coating material to remain constant over the entire surface and sides of the emitter because it would provide the upward force which is provided by the cup in Komoto, which has a coating material of a constant thickness on the emitter but no platform.

Regarding claim 13, the light emitter is an LED (column 1, lines 3-4).

7. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (3,555,335) (of record) in view of Komoto et al. (6,340,824) (of record), as applied to claims 1, 2, 6-7, 9 and 13 above, and further in view of Merg (5,019,746) (of record).

Johnson discloses a device with all the limitations discussed above, including a reflective cup, but lacks disclosure of a coating applied over the light-emitting device or of the reflective material coated onto the cup.

Komoto teaches a coating applied over the light-emitter, but also lacks disclosure of a reflective material.

Merg teaches a cup for supporting a light emitter having a silver coating, the silver increasing the reflectance of the cup (column 3, lines 34-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a fluorescent coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the reflective cup of Johnson with a silver coating to provide a highly-reflective layer, as taught by Merg.

8. Claims 10 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (3,555,335) (of record) in view of Komoto et al. (6,340,824) (of record) as applied to claims 1, 2, 6-7, 9 and 13 above, and further in view of Vriens et al. (5,813,753) (of record).

Johnson discloses a device with all the limitations discussed above, but lacks disclosure of a coating applied over the light-emitting device.

Komoto teaches a coating applied over the light-emitter (Figure 106, element FL), that coating comprising a phosphor (column 15, line 46) that absorbs light of a wavelength emitted by the light emitter and reemits light of a different wavelength (column 15, lines 42-47). The phosphor is dispersed in a solvent or coating material (column 49, lines 6-9).

Komoto lacks explicit disclosure of the material used as the solvent or coating material.

Vriens teaches a fluorescent material dispersed in an adhesive material made of epoxy (column 3, lines 32-34) in order to provide a material that will hold the fluorescent material and also be transparent.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of Johnson with a fluorescent coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the coating layer to include an adhesive such as epoxy in order to secure the fluorescent material while providing a transparent layer, as taught by Vriens.

9. Claims 1, 3-6, 9 and 12-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-235787 (of record) in view of Komoto et al. (6,340,824) (of record).

Regarding claim 1, JP 62-235787 discloses a light-emitting device comprising a base substrate (Figure 1, element 24) with a cavity to form a reflective cup, a projecting platform (36) at the base of the cavity, and a light emitter (25) mounted on the projecting platform.

Regarding claim 1, JP 62-235787 lacks disclosure of a coating material applied over the light emitter.

It is well known in the art to provide a coating of dye or phosphor over a light emitter to achieve a desired optical effect.

Regarding claim 1, Komoto teaches a semi-fluid coating having particles of another substance and being applied over a light emitter, where the particles (Figure 106, element FL) are evenly settled on and around the light emitter within the cavity, where evenly is interpreted as meaning equidistantly or with the same thickness

throughout and coating is interpreted as meaning a thin layer covering something. The coating can be described as semi-fluid because it comprises both a fluorescent material, such as a phosphor powder, and a fluid, such as a solvent, which is a fluid, that is deposited onto the light emitter (column 49, lines 5-20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of JP 62-235787 with a semi-fluid coating layer having particles coated evenly over the light emitter, as taught by Komoto, to modify the light emitted to achieve a uniform lighting effect.

Regarding claim 3, the projecting platform disclosed in JP 62-235787 is a discrete component, attachable to the base substrate (Abstract Constitution lines 1-5).

Regarding claim 4, the projecting platform and the base substrate disclosed in JP 62-235787 are made of different materials (Abstract Constitution lines 1-5).

Regarding claim 5, the base substrate disclosed in JP 62-235787 comprises a metal (Abstract Constitution line 1) and the projecting platform comprises a material able to efficiently dissipate heat generated by the light emitter (Abstract Purpose lines 3-6).

Regarding claim 6, JP 62-235787 discloses a reflective cup (34) to provide reflection of light emitted by the light emitter (Abstract Constitution lines 11-13).

Regarding claim 9, JP 62-235787 lacks disclosure of a coating covering the light emitter, as discussed above.

Komoto teaches a coating containing particles that settle to a lower position towards the periphery of the base of the cavity, thereby forming a coating containing the

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settled particle, the coating having of a constant thickness over a light emitter (Figure 106, element FL). Since the particles have a different settling speed than the surrounding layers' components, the fluorescent layer FL settles to the bottom (column 49, lines 5-20).

Therefore regarding claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter disposed on the platform of JP 62-235787 to have a coating formed uniformly over the emitter with the particles dispersed in the coating settling at a lower position toward the base, as taught by Komoto, in order to achieve a uniform light effect. In such an arrangement the platform would allow the coating material to remain constant over the entire surface and sides of the emitter because it would provide the upward force which is provided by the cup in Komoto, which has a coating material of a constant thickness on the emitter but no platform.

Regarding claim 12, a lens (32) disclosed in JP 62-235787 to focus the emitted light is formed above the light emitter. The coating material as taught by Komoto is formed directly over the light emitter and therefore the lens disclosed in JP 62-235787 would be positioned over the coating material.

Regarding claim 13, the light emitter disclosed in JP 62-235787 is an LED (Abstract Constitution line 12).

10. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-235787 (of record) in view of Komoto et al. (6,340,824) (of record), as applied to claims 1, 3-6, 9 and 13 above, and further in view of Merg (5,019,746) (of record).

JP 62-235787 discloses a device with all the limitations discussed above, including a reflective cup (Abstract Constitution lines 11-13), but lacks disclosure of a coating applied over the light-emitting device or of the reflective material coated onto the cup.

Komoto teaches a coating applied over the light-emitter, but also lacks disclosure of a reflective material.

Merg teaches a cup for supporting a light emitter having a silver coating, the silver increasing the reflectance of the cup (column 3, lines 34-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of JP 62-235787 with a fluorescent coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the reflective cup of JP 62-235787 with a silver coating to provide a highly-reflective layer, as taught by Merg.

11. Claims 10 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-235787 (of record) in view of Komoto et al. (6,340,824) (of record) as applied to claims 1, 3-6, 9 and 13 above, and further in view of Vriens et al. (5,813,753) (of record).

JP 62-235787 discloses a device with all the limitations discussed above, but lacks disclosure of a coating applied over the light-emitting device.

Komoto teaches a coating applied over the light-emitter (Figure 106, element FL), that coating comprising a phosphor (column 15, line 46) that absorbs light of a wavelength emitted by the light emitter and reemits light of a different wavelength (column 15, lines 42-47). The phosphor is dispersed in a solvent or coating material (column 49, lines 6-9).

Komoto lacks explicit disclosure of the material used as the solvent or coating material.

Vriens teaches a fluorescent material dispersed in an adhesive material made of epoxy (column 3, lines 32-34) in order to provide a material that will hold the fluorescent material and also be transparent.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the light emitter of JP 62-235787 with a fluorescent coating layer formed evenly over the light emitter, as taught by Komoto, in order to achieve a uniform lighting effect, and to further modify the coating layer to include an adhesive such as epoxy in order to secure the fluorescent material while providing a transparent layer, as taught by Vriens.

Response to Arguments

12. Applicant's arguments filed on December 8, 2003 have been fully considered but they are not persuasive.

The applicant has argued that claims 1-13 are allowable over the prior art of record because none of the references disclose, teach or suggest a light emitter with a semi-fluid coating having particles of another substance and being applied over the light emitter evenly. The applicant argues that the Komoto reference only discloses sintered pieces of fluorescent particles (pages 2 and 3).

The Examiner disagrees, and refers the applicant to Figure 106 and column 49 of the Komoto reference, which discloses a fluorescent coating (FL) comprised of phosphor particles dispersed in a solvent, which is generally defined as a liquid, formed on a light emitter. The fluorescent layer is disclosed by Komoto as being evenly formed over the LED (Figure 106), and the phosphor particles are disclosed as settling to the periphery of the base of the cavity in column 49.

Therefore the rejection of claims 1-13 is maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (703)305-4745. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig



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